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A
MEDICAL SKETCH
OF THE
SYNOCHUS MALIGNA,
OR
Malignant Contagious Fever;

AS IT LATELY APPEARED IN THE
CITY OF PHILADELPHIA:

TO WHICH IS ADDED,
SOME ACCOUNT OF THE MORBID APPEARANCES OBSERVED
AFTER DEATH, ON DISSECTION.

By ISAAC CATHRALL.

PHILADELPHIA:

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—1794.—

☞ THE Note * on page 8 should have been referred to from the word [Charleston, line 14. and what appears as a continuation of the Note should have been in the Text, following the word contagion, line 12.

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P R E F A C E.

THE subsequent pages are the result of observations made, during the period of three months, on a disease hitherto but little known in this part of the continent; and, although they have not a number of years' experience to sanction their accuracy, yet there are but few tropical practitioners, who have resided the greatest part of their lives in countries where the disease generally occurs, that have seen such a number of cases as some of the medical gentlemen of this city who have enjoyed but an indifferent share of health during the melancholy space of three months.

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To

To acquire information, to alleviate the distresses of my fellow-citizens, and to procure the matter of this essay, I have spared no pains; nor have I shrunk from scenes truly dreadful, to make myself acquainted with the leading features of this disease, and the different morbid phenomena after death, so as to be enabled to narrate every circumstance of importance and to discriminate the different stages of the disease with as much precision as the nature of it would admit; likewise, to point out the various appearances that tend to mark the favourable or unfavourable event, which are certainly of great importance to be ascertained both to the physician and patient.

It is, however, much to be regretted, that those circumstances are so little noticed by the different authors who have had repeated

peated opportunities of observing such a disease, so replete with danger in every stage; for, all I have had occasion to consult, since the disappearance of it here, seem to differ much both with respect to the history and method of cure. In the former, most of them are very deficient. In the latter, few, I believe, can boast, with propriety, of their great success, however different their methods of treating the disease may have been. For, some of those practitioners, who wrote at an early period, recommend profuse bleeding; others are more moderate in the use of that evacuation; and some writers advise the disuse of it altogether; whilst Dr Mosely, a more modern author, recommends it, in an extreme degree, in particular cases—his words are “*Usque ad deliquium animi.*” Such are the opinions of the various authors on the subject of venesection in this disease; but

but want of leisure and free access to the various medical publications, on this subject, during the prevalence of the malignant fever in this city, deprived me of an opportunity of consulting many books on the occasion. This circumstance prevented the influence of partiality or prejudice on my mind respecting the necessary treatment. I was, therefore, obliged to seek, through my own observations on the symptoms, and the appearance after death, what appeared to me the most rational method of cure.

I have added to this essay an account of some dissections made at the hospital at Bush-hill, during the prevalence of the disease, on such patients as were affected with it to an extreme degree.

Being

Being more desirous of submitting a plain narration of facts than ambitious to make a large book, I have omitted the insertion of some propositions which it was my intention to have offered to the public on the utility and manner of conducting quarantines, where the commerce of countries renders a purification of persons and commercial objects necessary. I, therefore, hope this interesting medical subject may be handled by some one of the profession who may have had longer experience than I have had in countries where such diseases generally occur, and whose abilities are more adequate to the task than my own.

I shall now proceed to give the clearest and most intelligible idea of the disease that my limited experience enables me to form. I shall merely state facts, as they occurred, without

without any attempt at embellishment of style ; for, the simplicity of truth requires no colouring—the is, like Milton's Eve,——
“ when unadorn'd, adorn'd the most.”

Philadelphia,

March 13th, 1794.

INTRO-

INTRODUCTION.

THE malignant and contagious fever, which has so lately committed such devastation upon the inhabitants of this city, appears, from all the information that could be obtained from the different publications on diseases incident to mankind between the tropics, to be one nearly resembling, in its most leading features, the yellow-fever of the West India Islands, and of the coast of Africa *; of which places I believe it to be a native. For

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* Doctor Williams observed the disease on the coast of Africa. See his essay on the subject, page 11.

we have no authentic and accurate description of it that I am acquainted with in the writings of authors on the diseases of the East Indies, or province of Canton in China, where the seasons of the latter are similar to those of the tropics. Various have been the appellations given to the late contagious fever, according to the different nations among whom it has occurred, and to the most uniform and constant symptoms they had observed in its progress. As a yellow suffusion sometimes takes place in the eyes and skin, it has by some authors been termed a yellow or putrid bilious fever: the latter from it's sometimes having a septic tendency. As neither of these symptoms are constantly observed in the course of the disease, there may be some impropriety in the terms, however universally they may have been adopted. By the French it is called "la maladie de Siam," from their supposing the same disease to have appeared in the kingdom of Siam in the East Indies. It is, likewise, called by the French "la fièvre
" mate-

“matelotte” because sea-faring people were supposed to be most subject to it. The Spaniards call it “vomito preto” or the black vomiting, from one of it’s dangerous symptoms. Such has been the diversity of name for this disease. And with respect to it’s origin in this city, it has been a little similar. Some have supposed it to be indigenous and the offspring of vegetable putrefaction. Others, that it was imported from the West Indies. Of the latter opinion I am clearly, for that is the most probable, and is supported by the greatest number of facts. When it appeared before in this country, which has been at six different periods, exclusive of that of the last year, it could, with facility, be traced to have been imported from the West Indies. It visited Charleston in South Carolina four times according to Doctor Lining, viz. in 1732, 1739, 1745, and 1748. It likewise appears from Dr Lind * that it was in-

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roduced

troduced here in 1740, by a trunk of wearing apparel; and, from the notes of Dr Redman, president of the college of physicians, on whose integrity I can depend, we are informed that it was brought here from the Havannah in 1762, by a mariner who arrived sick. From that time it has never been observed in this city until last year, when it first appeared on the third of August, in Waterstreet, between Mulberry and Sassafras Streets, at a boarding-house much frequented by seamen, many of whom belonged to the Xebec privateer, Sans Culottes, of Nantz, that had just come off from a cruise with the ship Flora her prize; the crew of which vessel, from every circumstance that could be collected, appears to have brought the disease indirectly from the West Indies into this city by exchanging part of her crew for that of a prize she had taken from the West India Islands, where the disease was well known to rage with great mortality.

The

The people most generally affected with this disease were the inhabitants of Philadelphia, and natives of America from different parts of the Continent. No condition, or situation in life was exempted from it's violence. The timid of both sexes, the most healthy, and those who seemed to have all the vigor of youth on their side, fell victims to it. No age scarcely escaped; from the child in the cradle up to confirmed manhood, and even from that to extreme old age. Women, during gestation, appeared to me to be more susceptible of it than those who were not in that state; and, in almost all, it produced abortion or miscarriage—few, I believe, recovered from it; owing, probably, to their systems being more disposed to violent inflammation than those of others. It was, however, more fatal to the male than the female sex. But the most chearful, fearless, and gay, of both sexes, frequently escaped it, as likewise did ideots, and those people who, for a considerable length of time, had been a little deranged.

Stran-

Strangers were very seldom attacked, particularly those from the West India Islands where it generally affects foreigners. But here they were seldom susceptible of it. Blacks of every description, were less liable to it than the white inhabitants; and the negroes originally from the coast of Africa were scarcely ever affected*, although some of those of our own country fell a sacrifice to it's violence.

During the first two weeks of it's appearance in this city, it was almost entirely confined to that part of Water-street where it commenced; and the inhabitants of that neighbourhood were seized in succession. For the first ten days there were seldom two attacked with the disease in the same house, which induced some to think that it was not contagious; but they were soon sorrowfully mistaken,

* Jackson of Jamaica observes, that he never saw a Negro or a Creole with the disease who had lived constantly in their native country. See his book on fevers, page 250.

mistaken, for, it became general among the families of that neighbourhood, and not long after spread it's mortal influence to different parts of the city, carrying off a great part and even the whole of some families, and produced such destruction, that, in the space of three months, upwards of four thousand and forty eight persons were consigned to eternity.*

It was a singular fact, that when carried into the country, it never was, but in one instance, that I am acquainted with, propagated beyond the person who carried it; although some of the family officiated as nurses, and even slept in the same bed with the patient until the day of his death. This was the case, in some measure, during the several times it prevailed in Charleston, South Carolina; and, like many other contagious diseases, it does not appear ever to affect the
same

* See Carey's account of the rise and progress of the disease.

same person twice. Although careful enquiry has been made by several of my medical friends and myself, it only appears that some of the patients had a slight relapse of fever, but without any of the distinguishing symptoms of the disease, and very soon recovered. This I have frequently observed in my own practice, and, likewise, in that of my friends—but I have never remarked a second attack of the disease, however constantly the patient may have been afterwards exposed to the contagion*. These circumstances are corroborated by the accurate Dr Lining of Charleston; and, in some measure, by some of the tropical writers, particularly Jackson of Jamaica, who goes so far as to say that “it has been seldom known to affect the same people twice, unless after
“ they

* See Physical and Literary Essays of Edinburgh, vol ii.

Upon strict inquiry among mariners and others who had the disease in the West Indies and those inhabitants who had it before when it visited this city, I cannot find one that was affected with the disease during it's late prevalence although much exposed to the contagion.

“ they had returned from a colder region ;
“ although the remitting fever” says he, “ of
“ Jamaica does not cease to attack such as
“ have resided the greatest part of their lives
“ in the climate.”*

Having thus far briefly traced the rise and progress of this disease, which was beyond a doubt, highly contagious ; I come now to consider, under what circumstances the contagion was communicated ;—How long it was, after apparently receiving the infection, before it produced its effects ;—And in what manner it acted on the system.

These questions apply to contagion in general, and are involved in much obscurity and doubt ; and it is probable that they never will be satisfactorily solved.

With regard to the first proposition, it may be observed, that like other contagious diseases,

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eases,

* See Jackson on Fevers, page 250.

cases, this seemed to be communicated in three distinct ways—

First—by immediate contact with the patient's body.

Secondly—through the medium of the air which surrounded him within a limited distance. And,

Thirdly—by bodies of different kinds being exposed to, and as it were, drinking up the matter of contagion, having a power of retaining it in an active state, and communicating it to animated bodies.

I believe the disease was communicated in these several ways. As to the first, viz. that of coming in contact with the patient's body, this was the most certain way of receiving it. I am not clear what particular stage was the most dangerous; but from such information as could be collected, during the prevalence of the disease, it appeared to be the advanced stages; although

although I knew a nurse, who I am almost certain received the infection from a patient, during the operation of an emetic ; for the matter thrown up by vomiting emitted a peculiarly fœtid smell, which affected her soon after she had carried it out of the room. Early the next day she was attacked with all the symptoms of the disease. From this instance, and several more I could adduce if it were necessary, of those who received the infection at a later period, during the inflammatory stage ; is it not probable that all patients, under similar circumstances are capable of communicating the disease, during the first and second days ? But it is infinitely more contagious in the latter stages than in the early period.

The second mode of receiving the infection, was from the matter of contagion arising from the morbid body impregnating the atmosphere of the chamber, and being applied to susceptible constitutions. This, I believe,

can only take place within a certain small distance of the person affected, for in proportion as it became diffused in the atmosphere, it must lose its activity, and be so far exhausted as not to be able to produce the disease. Therefore people in walking the streets, are secure from being contaminated by the atmosphere which surrounds them; for, although a number of articles, charged as it were, with the matter of contagion, be exposed in the open air; yet the effluvia issuing from them, would be so much diffused, corrected and modified, through that immense space, as scarcely to be able to have any effect, except within the contagious atmosphere, extending but a small distance from the articles themselves. The danger of going abroad in the city, during the prevalence of a contagious disease, is from coming in contact with the clothes of those who had recently left the chambers of the sick.

The third mode of receiving the infection, was from substances which had imbibed the
matter

matter of contagion, having the power of retaining and communicating it in an active state, such as woollens, furs, &c. under particular circumstances, as when excited by heat and applied to the healthy system, have a power of inducing the disease. In this manner it is probably conveyed into different countries, in a quiescent state; after which, being excited by heat or any other agent, it exerts its baneful influence on people within the sphere of its action; from which it is soon communicated and spread far and wide. In this way the contagion of the small-pox may be communicated—it may in like manner be retained from season to season, for inoculation. By the last mode of communication, many of the inhabitants of this city received the contagion of the yellow fever—from lying on beds upon which people had died, and some from even handling the bed-clothes of the diseased before they had been aired. I am acquainted with a gentleman of this city, who, in all probability, received the
infection,

infection, from lying on the packing bottom and bedstead on which his wife had died.

Our next proposition is—In what length of time the disease commences after a person has been exposed to and received the infection. This was variable and difficult to be determined; for many exposed themselves so repeatedly that it was not possible to ascertain the exact time at which they received the contagion: although in some, from the most accurate information that could be obtained, it was from nine until fourteen days after they were supposed to have received the infection. Those, whose apprehensions were much augmented by the dread of dying, seemed to have the disease sooner completely formed, after receiving the contagion, than those who did not labour under that anxious state of mind. But all that can be said on this subject is involved in great uncertainty. There seems however to be some analogy between this and other contagious diseases in respect to the time of it's
com-

commencement after the infection is taken. For as the small-pox, gonorrhœa, &c. require a certain length of time after exposure to and reception of the infection, before the disease is formed—so does this. Some constitutions seem hardly susceptible of those diseases, however much they may have been exposed to their influence. But the constitutions of such people are not often found among the variety of mankind; yet during the prevalence of the late fever there were numerous instances of persons who had not been exposed to its influence before, that were not affected by it. These instances are, however, particularly confined to the black inhabitants, with but few exceptions of a different colour. There was not one instance of a French West-Indian's having the disease, owing probably to having had it before; although those from Europe were as susceptible of it as the inhabitants of America.

With respect to the operation of the matter of contagion on the system, after being carried
ried

ried into the circulating fluids, and the state in which it continues from the time of reception until the appearance of the disease—are very difficult matters to determine, and I believe, will ever remain involved in mysterious darkness. But as contagious diseases, in general, exhibit strong marks of increased excitement and general phenomena of inflammation, requiring, almost always, a debilitating plan of cure; one would be inclined to think, with a late celebrated author, that its operation was a stimulant one, and that the length of time requisite to produce its complete effect; would be in proportion to the susceptibility of the constitution, to the action of contagion. This, of course, will be variable. There is another circumstance of importance to be ascertained; and with regard to which, it seems difficult to obtain any satisfactory information:—indeed, to decide properly on it, requires much more experience in contagious diseases, than I am possessed of, and this is, *How long convales-*

however, much retarded by cold, and greatly augmented by heat, as obviously appeared to those whose duty it was to attend the sick. It raged with great violence, during the months of August and September; continued in a lesser degree until the 24th of October, when it suddenly declined, without any very great alteration in the temperature of the atmosphere, and by the 16th of November there was scarcely a case of it in the city or its environs.

DEFINI-

DEFINITION.

THE disease, which I am about to delineate, may be defined, Synochus Maligna in which the most conspicuous symptoms were; red and minutely suffused eyes—painful sensations of them—sickness, and retching to vomit, accompanied with burning sensations in the region of the stomach—great anxiety at the præcordia, with an uncommon degree of restlessness and with frequent sighing:—The subsequent stages were sometimes attended with a bilious suffusion in the eyes and skin, with a corresponding color in the urine—pulse sometimes less frequent

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than

than natural—deep respiration with heavy sighing—diminution of heat—confusion of the intellects, often followed by vomiting of black matter resembling coffee-grounds—petechiæ—frequently a suppression of urine, with hæmorrhagies from different parts of the body.

The foregoing definition comprehends almost every distinguishing characteristic, that generally occurred in the progress of this disease; and has been expressly selected, in so extensive a manner, to serve likewise as a Diagnosis.

DESCRIP-

D E S C R I P T I O N
O F T H E
D I S E A S E.

THIS disease most frequently attack-
people in the course of the night or early
in the morning with some degree of ge-
neral lassitude, loss of appetite, disagreeable
taste in the mouth, sudden prostration of
strength, accompanied with universal pain
and soreness over the body particularly
about the large joints; these were soon after
succeeded with some degree of chillness, or al-
ternate chills and flushes of heat, but very
feldom

feldom a complete rigor; during the continuance of this state the face appeared pallid, the features contracted, the whole countenance exhibiting a dejected aspect, with a corresponding state of mind; after which was perceived a slight pain in the fore or back part of the head, and frequently some degree of vertigo, with a sense of fatigue about the loins not unfrequently extending towards the ilia and pubes; together with an uneasy sensation between the shoulders and back of the neck. These symptoms hourly increased in violence, attended frequently with disagreeable eructations, nausea, frequent retching to vomit, particularly after taking large draughts of warm or cool drinks, or upon motion of the body.

The eyes were generally highly suffused, exhibiting the appearance of a painted eye or one minutely injected, accompanied with a sensation as if irritated by sand, and generally an aversion to light. This I have frequently observed to take place during the rigor although

though generally at a more advanced period of the disease, or sometimes not at all during the whole course of it.—

After the rigor the pulse generally became frequent, tense, and tolerably even, at other times soft and irregular, the heat mostly a little higher than the healthy standard. The state of the skin variable, sometimes moist, but generally dry; respiration a little more frequent than ordinary, attended with sighing and oppression at the præcordia, indicating great distress. These were observable even from the accession of the rigor. At other times not until a more advanced period.

The tongue was generally moist and white, particularly in the middle and red or of a purplish hue towards the edges and tip. Bowels generally costive, but sometimes a diarrhœa, urine of a higher color, than natural and small in quantity.

As the evening approached every symptom became aggravated, the pulse more frequent,

quent, full and strong, heat considerably augmented, pain in the head and back excruciating, in the former shooting from temple to temple, in the latter to the hips and extending down the thighs, skin dry and parched, sometimes a partial moisture, particularly when the bed clothes were increased, but without any abatement of the febrile symptoms.

The sickness and retching increased, with an ejection of frothy or bilious matter or whatever fluid was last received into the stomach, accompanied with pain and soreness in the epigastric region upon the least pressure, with a sensation of incessant burning, attended with restlessness, so that no posture afforded any relief. During the exacerbation the respiration became more frequent, with an increase of sighing and slight pain and throbbing in one or other of the hypochondriac regions, with strong beating in the most conspicuous arterial trunks the face was very much flushed, the features considerably

derably distorted, with a slight hæmorrhage from one or both nostrils, and an increased suffusion of the tunica adnata.

The intellectual faculties at times appeared confused, but seldom a complete delirium. In the intervals of reason the patient was very desponding, and under dreadful apprehensions for the event, complained much of thirst which was almost insatiable, for no sooner did any fluid reach the stomach than it was instantly rejected with violence. Every morning the symptoms suffered some abatement *, and the patient generally during the first 24 or 48 hours complained of light shivering, which became varied throughout the day with vicissitudes of heat and partial moisture on the skin seeming much inclined to doze from which they were very often a-
E waked

* It may not be improper to observe that for several weeks after the contagious fever made its appearance in this city intermitting and remitting fevers were met with at a short distance off from the place where the malignant fever was exerting its destructive influence.

waked by frightful dreams, after which they generally became very watchful ; as the disease proceeded the tongue was very little altered from a state of health, except appearing in furrows or chopped and of a bluish colour, at other times yellow or brown in the middle and bluish at the edges and tip, but seldom dry. When stools were procured they were generally fætid and frothy, but seldom bilious. The urine was variable, generally of a higher colour than natural. Some of these symptoms which marked the first stage proceeded rapidly to increase with a mitigation of others and the rise of new ones, unless an intermission supervened on or before the fourth day and the patient recovered. But most frequently instead of this intermission, a mere composure of symptoms only took place which was too often fallacious, during which however the eyes and skin sometimes became yellow, and the sick appeared so placid to the attendants that they often thought them out of danger. But this treacherous tranquillity soon vanished, and the second
stage

stage commenced with a different train of symptoms, and with redoubled violence; for the vigor which before was excessive now declined apace, and the disease put on a different complexion, the pain in the head and back which was before excessive and almost intolerable, frequently abated on a sudden and the fever assumed more and more the symptoms of the typhus kind; the pulse became less frequent, soft and feeble, and sometimes even slower than in a state of health; the face much less flushed, the features more tranquil, with a cadaverous aspect of the countenance, or sometimes it was but little altered, the suffusion of the eyes frequently increased, the heat became considerably diminished, and in some cases less than in a state of health, skin cool sometimes with a clammy moisture on the face neck and back of the hands; the sickness at stomach increased with a burning sensation in the region of it and continual vomiting of frothy matter, at other times bilious streaked with blood. In the female sex if the menses did not flow at their

usual period there was generally a quantity of blood brought up by vomiting, accompanied with violent stricture about the præcordia, and a sense of weight with great flatulency in the stomach and the intestines which was very distressing, for they were generally costive, and had not energy sufficient to expel the wind either upwards or downwards. The tongue in this stage trembled much, and with respect to colour it was variable, as in the former, frequently nearly natural, at other times covered over with mucus verging towards black, particularly in the middle, sometimes dry, but generally moist, and not unfrequently it was of a florid colour appearing as if rubbed over with the red particles of the blood, with deep furrows in it or chopped; when the patient was desired to put it out of the mouth he would continue it there until he was told to draw it in. The thirst was much augmented with a continual dryness of the lips and fauces. The confusion of the intellects increased to a complete delirium, the restlessness became truly distressing, and

and the patient almost outrageous, and in some cases maniacal.

The skin and eyes became of a deep yellow color, with the same appearance in the urine, which was small in quantity, and discharged with difficulty, when the skin was not suffused the urine was turbid, depositing a deep brown sediment. The respiration was slower than natural except when the body was much agitated by the extreme restlessness, accompanied with heavy sighing, and much debility in all the moving powers of the body, the patient generally lay on his back with his feet drawn up towards his body, nevertheless he had sufficient power when urged by the call of nature to rise from his bed.

In the decline of this stage the skin was sometimes covered over with petechial eruptions, appearing like the stings of nettles of a dark red colour, principally about the neck and breast, accompanied sometimes with hæmorrhages

hæmorrhages from different parts of the body, but these symptoms more particularly belong to the third and last stage; the duration of the second stage was various, generally according to the violence of the symptoms, or to the duration and severity of the preceding stage, but it seldom lasted longer than 50 or 60 hours before death took place, sometimes without the occurrence of many of the symptoms of the last stage.

This stage generally commenced with the pulse becoming very feeble, intermitting, and almost imperceptible at the wrist, frequently not more than 30 or 35 strokes in a minute,* great diminution of the heat of the whole body, except about the præcordia, which seemed, if the expression may be used, to be *more tenacious of its heat than any other part* of the body, and is the last part that surrenders it up after death.

The

* This appeared from numbering them by the watch at the bed side.

The skin became much cooler and covered universally with a clammy moisture; the countenance exhibited a cadaverous aspect; the eyes less painful but so dreadfully suffused as sometimes almost to obliterate the colour of the tunica albuginea, with great twitching of the muscles of the face, and general subfultus throughout the body; the petechiæ increased and became of a purplish colour, between which the skin was of a deep yellow; great delirium with continual restlessness, the patient laying principally on his back, the powers not being sufficient to retain him on his sides; the feet were generally drawn up, the whole body frequently sliding down in bed. The vomiting increased, and the matter ejected was of a dark color, resembling coffee grounds, sometimes mixed with blood; great flatulency; hæmorrhagies from the different parts of the body; tongue frequently covered over with blood and of a florid colour, at other times black and dry; urine very offensive, sometimes a total suppression of it, and when
stools

stools were procured they were extremely black and fœtid ; livid ulcers in the mouth ; and the parts where blisters had been applied assuming a black aspect ; laborious and deep respiration, with heavy sighing and great oppression at the præcordia ; faltering in the speech ; cold and livid extremities ; involuntary discharges of fæces ; loss of swallowing ; coma ; eyes glazy ; singultus and convulsions frequently closed the miserable existence of the patient.

These were the appearances of the Malignant Fever through it's several stages. Altho' in it's first attack it was frequently much varied ; sometimes the patients were seized of a sudden, at other times in the manner above described ; but often in it's different stages it was much diversified, according to the violence and duration of the symptoms, to the age sex and constitution of the patient. In some the disease terminated in death during the inflammatory period ; in others it was

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hurried

hurried so precipitately through the stadiæ that they could hardly be discriminated by the most accurate observer, the patient's fate being soon determined. In other cases it passed with some degree of regularity, as above marked, and the dissolution or recovery, was protracted to an uncommon period. This was particularly the case in those people who laboured under a severe ptyalism from the effects of mercury.

PROGNOSIS.

IN judging concerning the event of the malignant fever in its first stage, the danger was generally in proportion to the degree of inflammatory action; of this a judgment may be formed from the violence and duration of the symptoms.

When the febrile affection was very considerable, which was demonstrated by the violent pain in the head and back, great suffu-

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sion

sion of the face and eyes, with obvious, distortion of the features ; nausea and vomiting, with a sense of universal soreness, particularly in the limbs, it may be concluded that the danger is imminent.

When the inflammatory stage was of short duration and of great violence, accompanied with unusual quick respiration, heavy sighing, and great oppression at the præcordia from the commencement, together with great restlessness, confusion of the intellects and deep despondency of mind, with a dread of speedy dissolution ; these were to be considered as very unfavourable symptoms.

When very great prostration of strength or a spontaneous diarrhœa appeared after bleeding, without manifest relief to the patient, they were generally unfavourable symptoms indicating danger in proportion to their violence.

Should

Should a yellow tinge in the eyes and skin appear which is merely an accidental circumstance, although it has been considered by some of the tropical writers as an unfavourable appearance, by others as expressive of the crisis of the disease, my experience does not corroborate either the one or the other, but I am induced to consider it as a favourable, rather than an unfavourable occurrence. Should the retching and vomiting be much increased, with dark or coffee-coloured matter ejected, death generally ensued.

The fatal terminations most commonly happened on the fourth or fifth days. In some cases on the twelfth and even on the twenty fourth and twenty fifth days. But these patients frequently in addition to the disease, laboured under a severe ptyalism from the administration of large quantities of calomel during their indisposition, which salivary discharge in all probability protracted the life of the patient.

A favourable prognosis may be formed in this stage of the disease, from the febrile symptoms being more moderate, together with the absence of some of those before mentioned ones, particularly the suffusion of the eyes, sighing and vomiting, especially if a slight hæmorrhagy takes the place from the nostrils with eruptions about the mouth, a slight cough and an expectoration of yellowish matter, with bilious evacuations by stool particularly if they afford relief to the patient, together with the formation of abscesses in different part of the body, they are frequently attended with an abatement of almost every other symptom and the patient recovers.

Prognosis in the second stage. If the pulse became very feeble, small and intermitting * with a considerable diminution of heat below the natural standard, excessive vomiting with
great

* In elderly people I have found the pulse intermitting in several cases and they always recovered.

great burning in the region of the stomach, particularly if the matter that was ejected be black which was frequently the case, the patient had but a short time to live.

There was little information to be acquired in any stage of this disease from the appearance of the urine, but when it was dark and fœtid, the patient delirious, troubled much with flatulency, great suffusion of the adnata, a cadaverous aspect of the countenance with vomiting of blood, which frequently occurred in the female sex, when their menses did not flow at the usual period and when it happened to women at the period of life when they become extremely irregular and generally cease to flow, the prognosis will be found very unfavorable, for at that time of life the system undergoes a very material change, being about to accommodate itself to a new mode of action, is scarce ever able to withstand this change together with the violence of so dreadful a disease.

When

When the tongue was florid appearing as if rubbed over with the red particles of the blood, accompanied with a clammy moisture on the different parts of the body, respiration laborious, with sighing and livid petechiæ generally spread over the skin, the parts where blisters were applied becoming of a dark colour, together with the posture of the patient's body indicating great debility, with difficulty in making water, although the pulse be at the same time tolerable even and strong which is not unfrequently the case, they are marks of extreme danger.

A favourable prognosis in this stage as well as in the preceding, does not depend on a solitary favourable symptom, but on several, therefore we should be guarded in giving an opinion.

If the pulse from being extremely feeble should acquire more strength and the heat which was before considerably diminished become

become general nearer the healthy standard, together with an abatement of the violent vomiting and burning sensation in the region of the stomach and præcordia, the brain less confused * with a diminution of restlessness and cessation of sighing, gradual disappearance of petechiæ with an enlargement in and about the parotid glands, disfiguring much the natural form of the visage occurring particularly in children, sometimes in adults, tongue becoming cleaner from the middle and point towards the edges, the patient capable of laying in any position with tolerable facility, with incipient formation of abscesses in different parts of the body and a slight return of appetite, although the skin and eyes be of a deep yellow colour you may prognosticate with some degree of certainty that the event will be favourable. .

Prognosis in the last stage. This may be considered as only a deeper shade in the symptoms

* If the patients became maniacal the disease generally disappeared and they frequently recovered.

symptoms of the latter part of the second with the addition of others, but replete with danger so that there is scarce a symptom wearing a complexion sufficient to inspire the mind of the physician with a ray of hope for the favourable termination of the disease.

Nevertheless this was sometimes the case with all the disagreeable symptoms of the latter part of the second stage with the occurrence and augmentation of those in the last, including the sighing, yellowness of the skin, delirium, black, vomiting livid ulcers in the mouth, sphacelation of blistered parts, hæmorrhages from the nose and mouth, black tongue, with almost every other symptom that this stage can produce, excepting a remarkable feeble and intermitting pulse, I have seen several times perfectly recover. The change generally took place for the better on the ninth or tenth days, on which the pulse became more full strong and even, intellects less confused, tongue more florid from the middle towards the

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the edges, heat general and more equally diffused, cessation of vomiting and hæmorrhages, bowels more regular with a slight return of appetite and beginning absorption of the yellowness and petechiæ, with a capability in the patient of laying in any position, with increasing strength and complete recovery. But these instances must be confessed are very rare, though I believe few will deny their occurrence, but under the above related symptoms, death seems almost the only alternative.

OF THE
METHOD OF CURE.

IN the cure of the malignant fever, three indications appeared necessary : first, to moderate the inflammatory action ; secondly, to remove or alleviate certain distressing symptoms which generally occurred, more or less, through the several stages of the disease ; thirdly, to support the tone and vigor of the system. In effecting the first indication, the various parts of the antiphlogistic regimen seemed admirably well adapted. In employing the debilitating powers, a judgment may be formed by the degree of tone and inflammatory action prevalent in the system ;

system; and the danger of the disease passing into a state of direct or indirect debility should be steadily kept in view. The former from the use of too copious evacuations, and the latter from a deficiency of them; for it is an easy matter to diminish the vigor of the system, but a very difficult one to rear it when reduced too low: therefore every endeavour should be exerted to avoid the two extremes, for they are both accompanied with imminent danger. By observing as near as possible the middle course, the most judicious plan may be pursued.

The first indication was most effectually answered by the different classes of evacuants; among the most efficacious was brachial venæsection.

About the tenth of August, which was shortly after the disease made its appearance in this city, bleeding was not attended with

success, at least among the sick under my care; therefore the practice was discontinued, and I trusted, with most of my medical brethren, to the milder class of evacuants until the 12th of September. After having dissected several patients, in conjunction with my friend Dr Physic, and on finding the stomach and intestines highly inflamed, as will appear from the subjoined dissections, I then, resumed the practice of bleeding upon good grounds and with evidently better effect.—The quantity of blood to be taken away was regulated by the violence of the symptoms, age, sex and habit of body; for, those who were very corpulent did not bear evacuations near so well as those of a spare make. But no certain rule can absolutely be laid down, with respect to the quantity of blood to be drawn, and whenever it is attempted it must be subject to considerable error, notwithstanding the number of ounces to be abstracted has been dictated by some authors, whose opinions on this subject are
various

various; Dr Williams of Jamaica who wrote in 1750 advised plentiful bleeding. Dr Hillary of Barbadoes, used venesection once or twice during the first days of the disease *, and Dr Mosely, a more modern writer, informs us, that bleeding should be performed and repeated every six or eight hours, and if the symptoms be obstinate and do not abate, it should be executed usque ad deliquium animi †. Dr Blane, in his book on the diseases of seamen observes, that if the patient had not a throbbing pulse, with violent pain in the head and back, it should not be performed; and that without the presence of those symptoms it was extremely dangerous, Dr Warren, a gentleman who had passed a considerable time in Barbadoes, seems much averse to bleeding, in any stage of this disease.” Such are the different opinions of the tropical writers on this subject. But during the prevalence of the malignant fever in this city, which

* Hillary's Observations, page 157.

† Mosely, page 429.

which nearly resembled that described under the appellation of the putrid bilious fever of the West India islands, I was influenced, in the abstraction of blood, by the tension and fulness of the pulse, the season of the year and other circumstances previously observed, together with the abatement the sick experienced of the symptoms during the flowing of the blood. But it was very seldom that one bleeding, however profuse it may have been, would put an end to this disease; although the pain in the head and back may be much mitigated. Yet they too often returned with additional violence, at which time, if the pulse continued full and tolerably tense, the strength not much impaired, a sufficient quantity of blood may be taken away to procure an alleviation of the symptoms, which should be repeated as often as they recur in the inflammatory stage of the disease, but it seldom appeared necessary to be done later than the end of the third day, when it was employed at a more advanced period

period particularly near the time the disease was passing into its second stage, it invariably increased the train of terrible symptoms which mark this period, with a sinking in the pulse that no human effort was able to support. The blood drawn in this stage of the disease very seldom perfectly separated into serum and crassamentum; when it did the former was nearly of a natural colour, though small in quantity in proportion to the latter, the crassamentum was generally of a florid arterial colour, tender in the course of the warm weather, as the cool weather advanced and the disease became more inflammatory it was fizy in some cases, with a proportionable degree of contraction of its superior circumference, exhibiting a cup like appearance. This was generally in proportion to the density of the crassamentum and firmness of the buffy substance, though sometimes during the warm weather there was a thick tender fizy coat on its upper surface without the cup or as it is generally called salt box appearance. When blood was drawn during the yellow suffusion of the skin

skin, the serum was of a corresponding colour but not in the least bitter to the taste that could be observed in a variety of instances and like healthy serum it was affected by heat and acids. But to return to the cure at the same time that great attention was paid to blood-letting, other remedies were not neglected, especially whatever contributed to diminish the quantity of fluids in the system and carried off the redundant matter in the first passages, was proportionably efficacious in diminishing the inflammatory action, such as cathartics and other evacuants, which were employed as being secondarily the most powerful remedies, particularly when alternated with bleeding, which appeared to be the most judicious way of using them, those that were preferred were such on whose powerful action reliance could be had and when the stomach was sick required but a small quantity to answer the purpose at the same time being agreeable to the palate.

Calomel possesses most of those properties, and under certain circumstances could be administered with the greatest advantage. This medicine was first employed here in large doses by Doctor Rush, and afterwards generally adopted by the practitioners of this city. It should be given in large doses until it has the desired effect and should be expedited in it's operation by giving laxative glysters; when the functions of the stomach were not much deranged which was sometimes the case, the saline purgatives were made use of, such as sal Glauberi, which were powerful, less stimulating than the calomel, and of course better antiphlogistics, answering the purpose equally well, as the object was merely to reduce the energy of the system and carry off the bilious matter.

During the time those remedies are employed it is hardly necessary to observe that

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the patient should abstain from all preparations of animal food, and when any thing is required it should be gruel, panada, &c. he should use cool diluting drinks, such as barley water, apple water, and those that are mild and bland; he may be indulged with small quantities of ripe fruits, which are agreeable and beneficial by tending to keep the bowels open. Emetics have been sometimes employed in this stage of the disease with a view to evacuate the contents of the stomach, but they are seldom used with advantage, for their highly stimulating power almost always increased every symptom, which of course precluded their use.

To relieve the violent pain in the head, blisters were employed after general evacuation had been made use of as far as appeared advisable, but previous to their application to the neck there were several cupping-glasses set on the part to be blistered, this mode of practice generally afforded considerable relief.

It

It was the custom of some of the French physicians in this city to wrap the patient's body in a blanket that had been wrung out of warm vinegar and water in order to induce sweat and a solution of the disease. The former it did sometimes partially effect, but generally with aggravation of almost every other symptom. In addition to this practice they frequently gave a few grains of nitre and camphor in every stage of the disease, but this appeared trifling with the patient at the expence of his life.

With respect to the chambers of the sick, they should be spacious and airy, kept cool, and frequently sprinkled with vinegar; great attention should be paid to these circumstances as they are of infinite importance to those who frequent the apartments of the sick, and are highly conducive to the cure of the disease.

Having thus far taken notice of the remedies suitable to answer the first indication, I

come now to a consideration of the second, viz. to alleviate or remove certain distressing symptoms, such as violent vomiting, costiveness, flatulency, great restlessness and want of sleep, together with the means used to divert the deep desponding state of mind of the patient.

First, to moderate the excessive vomiting too often baffled the art and sagacity of every practitioner, however, various means were employed to effect it, which may be divided into external and internal; among the former was blistering the different parts of the body, particularly the region of the stomach. This remedy from its obvious good effect in cholera morbus would have induced most people to conjecture that it would have been beneficial in this disease; but from repeated trials it seemed to have but little influence on the state of the stomach. Blisters have been recommended to be applied to the legs by Dr Hume of Jamaica, from which he experi-
enced

enced very good effects, but however serviceable this mode of practice may have been in the West Indies, it appeared here only to torture the patient's feelings without the least abatement of the vomiting; warm bathing was employed in this stage of the disease, sometimes with a mitigation of the vomiting, but frequently it increased the sickness at the stomach and produced syncope. In some cases, the application of flannels wrung out of a warm and strong infusion of aromatics and applied constantly to the region of the stomach, were sometimes serviceable, but external applications taken in the aggregate seemed seldom to promise much advantage.

With respect to internal remedies, almost every antiemetic was employed that the experience of physicians had found useful, but frequently without having the desired effect, such as the saline mixture in the state of effervescence; the infusion of rad. Columbo, cinnamon water with liquid laudanum; the
peppermint

peppermint julep with tinct. Thebaic. and the different articles of drink both cool and tepid, such as barley water, toast water, apple water, lemonade, chamomile tea, and a variety of other drinks during the inflammatory period, after which small doses of tinct. cort. Peruv. with Spt. lavend. comp. was administered with a good effect, particularly when the symptoms of violent inflammation of the stomach did not contraindicate its use; and it was especially serviceable in such patients who had been accustomed to an irregular mode of life, and drank to excess of spirituous liquors; for when every other article was immediately rejected it generally continued on the stomach, the mucilaginous vitriolic mixture* was used to advantage, and small quantities of wine, porter, cyder, or brandy and water was of service by giving tone to the debilitated stomach.

Fresh

* Which is mucilage of gum arabic acidulated with elixir of vitriol.

Fresh buttermilk was frequently found grateful to the sick and very beneficial as an antiemetic even when from the symptoms it might be concluded that the stomach was highly inflamed. Likewise a teaspoonful of crem. tart. dissolved in sugar and water was known to stay on the stomach and pass through the bowels, when every other medicine and drink was instantly rejected: this medicine was administered with a view to remove costiveness, which should always be guarded against in this disease, but the patient finding it so effectual in stopping vomiting he frequently had recourse to it without being costive with the same good effect; in several other cases it was made use of but was too often instantly rejected; castor oil administered under similar circumstances had the like effect; but this was not often the case, although I have frequently known it to continue on the stomachs of people violently sea-sick and remove costiveness when drink of every kind was immediately
thrown

thrown up. During the excessive sickness at the stomach in the progress of this disease, it may be observed that generally the most agreeable medicine and drinks were less frequently rejected than those of an unpleasant quality, for no sooner did a draught of any liquid reach the stomach than it was instantly rejected with violence, it is not to be apprehended from the quality but merely from the quantity, therefore the patient should not take more than a table-spoonful at a time, his own feeling with respect to fulness and sickness at the stomach should always determine the frequency and quantity of drinks to be taken, however insatiably thirsty he may be, in conjunction with these precautions the body should be kept as quiet as possible, for the least accelerated motion of it frequently brought on a paroxysm of vomiting. During this perturbed state of the stomach Dr Moseley thinks a diaphoretic plan should be adopted, with James's powders, in order to relieve the internal irritation by revulsion, and enable

the stomach to bear purgatives, which always, says he, carries off the offending humour* with due deference to the experience of Mosely I cannot help dissenting from him in opinion, and seem to think that he has almost forgotten the irritable and even frequently inflamed state of the stomach, or surely he would not have recommended an irritating medicine to soothe an irritation which would come very near in contact with the villous coat of the stomach, and consequently from its irritating quality would induce a contraction of that viscus in order to expel it, accompanied with exquisite torture, a practice which few physicians would not consider as highly erroneous and extremely prejudicial.

To remove costiveness and flatulency, which were extremely distressing through the course of this disease, was always a very difficult matter to accomplish, particularly when there

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was much sickness at the stomach, with vomiting, for the intestines were frequently very sluggish in their action, and the stomach generally rejected every class of purgative medicines. When this was the case, there was no alternative but that of keeping the bowels open by purgative or laxative glysters, and those were subject to considerable inconvenience when they could be administered, which was not often the case, for they frequently cleared but the lower part of the intestines, whilst those approximating the stomach were generally distended with fæces, and was an incessant source of irritation to the sympathizing stomach. Therefore whenever there was a chance of success in the administration of purgative medicines they were always attempted, for they generally cleared the whole tract of intestinal canal, and frequently procured a mitigation of the vomiting, but if they were rejected, they were not frequently repeated, for fear of exhausting the strength of the patient without contributing

ing to his relief. By thus keeping the intestinal canal clear of fæces, you in some measure obviated flatulency. But in an advanced period of the disease, the stomach and intestines were so much debilitated, that they frequently had not energy sufficient, when apparently clear of fæces, to expel the wind either upwards or downwards, but it continued as it were stationary tormenting the patient. During this state when the stomach was tolerably tranquil, a strong infusion of semen fæniculi was administered mixed in a small quantity of brandy with advantage, particularly when alternated with some agreeable tonic, such as the mucilaginous vitriolic mixture already recommended, if nothing contraindicated its use, or a small quantity of a strong infusion of spices, which sometimes afforded relief, but those symptoms too frequently baffled every attempt to remove them.

The next circumstance that commands attention is the extreme restlessness and want of
1 2 sleep.

sleep. Generally by quieting the former the fatigue from the long wakefulness will frequently induce the latter. This indication was most effectually answered by opium, the propriety of employing of which has engaged the attention of many of the tropical writers, by one it is much approved of,* by another it is absolutely condemned very justly during the inflammatory period, as being highly stimulating and acrid, the use of which says he must be attended with imminent danger.† In the subsequent stages good effects have been experienced from the use of it, particularly in the second and last stages of the disease, in the former by inducing sleep, consequently refreshing the patient and enabling him in some measure to resist the extreme violence of the disease, in the latter it afforded consolation by lulling the inquietude and smoothing the avenue to death.

With

* Hillary's observations, page 160.

† Dr Mosely.

With regard to the last head of the second indication, viz. that of diverting the gloomy and desponding thoughts of the patient, this was attended with almost insurmountable difficulties, however it should be always attempted, by the most encouraging language and assurance of a complete recovery, for on this the favourable termination of the disease much depends. The patient should not be told that he has the yellow fever even if demanded, for I have known a patient faint in this disease from an unguarded expression, and afterwards die apparently from a slight attack, for no art could persuade him that his dissolution was not approaching with hasty speed. Therefore great circumspection should be observed and the patient encouraged with as much consistency and boldness as possible, for most of the sick that were slightly indisposed, would seize hold of the least dubious expression, particularly if dropped by the physician, respecting their recovery. But after doing this you should take an opportunity of stating the
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circumstances clearly to the connections with the prospect of success, or if you should not succeed the ignorant and illiberal will censure your conduct.

I come now to the third and last indication which was of all others the most difficult to accomplish, viz. to support the sinking tone and perishing vigor of the system, this indication is applicable to the second, but more particularly to the last stage of the disease, for the latter being an augmentation of the symptoms of the former, sometimes much diversified, requiring more powerful remedies. Whenever a change was perceived in the system indicating that debility was commencing, the nature of the disease must be considered as materially different, consequently requiring a particular mode of treatment; the patient should not be restricted to a vegetable diet or watery drinks, especially if there are no violent symptoms indicating inflammation of the stomach,

stomach *, stimuli should be employed both external and internal, according to the state of debility prevalent in the system, such as blisters to the different parts of the body in order to excite the system ; for the application there when deferred to a more advanced period was rather of disservice, for the strength of the patient was so far exhausted, that the parts blistered soon became black and sphacelated, sometimes attended with profuse hæmorrhagy. Therefore their application was discontinued in the last stage of the disease. Washing the whole body in brandy and water, or when that could not be complied with, the face, breast and hands, which always proved refreshing to the sick ; cold water thrown over the head and shoulders, morning and evening,

* May not all those symptoms of increased action and inflammation in the vessels of the stomach at this period of the disease, when the system is so much debilitated, be supported by an atony subsisting in the diseased vessels and requiring stimuli to remove it, similar to those recommended by authors to cure what is called passive inflammation.

ning, frequently had a good effect, by giving vigor and supporting the excitement already effected by stimuli ; likewise it invariably induced sleep, with a gentle moisture on the skin*. In addition to the external stimuli already mentioned, sinapisms should be applied to the feet and when there were no symptoms contraindicating the use of internal remedies, such as violent symptoms of inflammation in the stomach, they should be administered, and one would imagine, from the declining vigor of the system,

* The following case, corroborates the practice of cold bathing in this stage of the disease. In September last a miller residing on Pennypeck, caught the malignant fever by coming into Philadelphia ; during his illness, the physician who attended him took the infection from him, and in the course of the disorder became delirious, and about the third day from the attack he escaped from his attendants through a window with only his shirt and breeches, and jumped into a mill-dam, from whence he was taken and carried to his bed, when breaking out into a violent sweat, he was thereby relieved and recovered. At the time of indisposition, when the patient eloped, it may be concluded that he was in the second stage of the disease, which is the time cold bathing should be employed.

system, that bark as standing foremost in the class of tonic medicines would be eminently serviceable * in supporting the energy of the system. Upon this ground it is to be apprehended that Doctor Kuhn recommended the cortex and wine in this disease, the former of which in some cases was serviceable particularly when the functions of the stomach were not much deranged, but nausea and vomiting were so invariably present, that in almost all cases in whatever manner or form it was administered it always, at least in my practice, proved detrimental †, particularly when given by the mouth; for it seldom if ever failed to derange the state of the stomach in such a manner that it was not susceptible of retaining any other medicine or drink, when administered in the form of glysters mixed with London porter

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* The intermittent and remittent fevers, mentioned in a note in the history of this disease, were cured by emetics and the bark, the latter continued on the stomach as well as usual.

† Except to use it in small doses to quiet the perturbed stomach—given under the circumstances formerly mentioned.

and laudanum it did not seem to have any good effect, for they generally produced a painful sensation over the whole abdomen. This was sometimes the case even when a common laxative glyster was given, so that the patient could scarcely retain it a moment. During the time bark was employed, wine was given, beginning with claret or any other weak wine; but if there was great defect in the vigor of the system, Madeira was soon found necessary, if wine could not be taken by the patient, brandy diluted with water, porter or cyder may be substituted; these should be increased in quantity, according to the state of the stomach and degree of feebleness in the pulse, at the same time elix. vit. was employed as a tonic; for the bark the most powerful of all tonics, was found to disagree with the stomach, and was therefore always omitted, except during the convalescent state, and an entire dependence was placed in the medicine recommended, together with the wine or its substitute which should be administered in large quantities

quantities, and continued until the pulse from being small and sinking, became full, round, and tolerably strong, the heat more equally diffused, the delirium abating and the patient becoming more chearful; such were frequently the effects of those stimuli, and even when the strength appeared almost exhausted, they would revive and keep up the spark of life, and sometimes in the most deplorable cases, restore perfect health and vigor.

However great caution should be observed in the administration of wine that when the most urgent symptoms are mitigated, and some of them removed, that the quantity should be diminished gradatim; but should the dangerous symptoms return, it must be augmented with caution, for fear of hurrying the excitement beyond the powers of the system inducing indirect debility with hæmorrhagies from different parts of the body: this is not unfrequently the case with those stimuli, and cold bathing, particularly if the stomach is not in a fit

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situation to receive such nutritious articles as would impart a sufficient degree of energy to render the fluctuating excitement more permanent and equable : if an adequate quantity of the abovementioned stimuli cannot be taken to raise the excitement, small doses of volatile alkali may be given with advantage, increasing the dose as the urgent symptoms may demand. This practice was more expedient if the patient could take some nourishment that was light and agreeable, such as panada or gruel, or if there was a slight return of appetite, some preparation of animal food should be given, such as weak broth, and at times a few oysters, if the stomach would bear them ; however, great caution should be observed in making use of solid food. If any is advisable, oysters certainly are the most proper, as they are the most easy of digestion, affording a sufficient quantity of nourishment.

Having thus far imperfectly sketched the different remedies found most expedient and
beneficial

beneficial in the cure of this disease, it remains only to take notice of the conduct to be observed by the patient during the convalescent state, which was generally tedious, particularly when the disease had been remedied by profuse evacuations, the recovery was considerably protracted and precarious, the patient acquiring strength but slowly, and sometimes having a tendency to ascites: during the recovery the patients should be very circumspect in their conduct for fear of a relapse of fever; they should choose food most easy of digestion; eat moderately; and take a dose of bark two or three times a-day, to assist digestion and invigorate the debilitated system. In addition to this medicine a liberal quantity of wine should be allowed, but never suffered to be carried beyond the cheerful glass, or that moment it will become prejudicial. With these, moderate exercise should be conjoined, for on it the recovery much depends; the bowels should be kept open; the night air avoided; and every other circum-

circumstance attended to, that is found useful and recommended by authors on this subject.

DISSECTIONS.

1st. The brain was found in all its parts in a natural condition.

2d. The viscera of the thorax were perfectly found, the blood, however, in the heart and veins was fluid, similar in its consistence to the blood of persons who had been hanged, or destroyed by electricity.

3d. The stomach and beginning of the duodenum were the parts that appeared most diseased in two persons who died with the disease on the fifth day, the villous membrane of the stomach, especially about its smaller end was found highly inflamed, and this inflammation extended through the pylorus into the duodenum some way; the inflammation here was exactly similar to that induced in the stomach by acrid poisons, as
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by arsenic, which we have once had an opportunity of seeing in a person destroyed by it.

The bile in the gall bladder was quite of its natural colour though very viscid.

In another person, who died on the eighth day of the disease, several spots of extravasation were discovered between the membranes, particularly about the smaller end of the stomach, the inflammation of which had considerably abated: Pus was seen in the beginning of the duodenum and the villous membrane at this part was thickened.

In two other persons who died at a more advanced period of the disease, the stomach appeared spotted in many places, with extravasations, and the inflammation disappeared, it contained, as did also the intestines, a black liquor similar to what had been vomited and purged before death; this black liquor appears clearly to be an altered secretion from the liver, for a fluid in all respects of the same quality

lity was found in the gall bladder; this liquor was so acrid that it induced considerable inflammation and swelling on the operator's hands, which remained some days, the villous membrane of the intestines in these last two bodies was found inflamed in several places.

The liver was of its natural appearance, excepting in one of the last persons, on the surface of which a very few distended veins were seen; all the other abdominal viscera were of a healthy appearance.

The external surface of the stomach as well as of the intestines was quite free from inflammation, the veins being distended with blood, which appeared through the transparent peritoneum, gave them a dark colour, the stomach of those who died early in this disease was always contracted, but in those who died at a more advanced period of it, when extravasations appeared, it was distended with flatus.

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Book taken apart, leaves deacidified with magnesium bicarbonate. Folds reinforced, leaves mended & supported with lens tissue where weak. Resewed on linen cords with new all-rag end paper signatures, unbleached linen hinges & hand sewed head bands. Rebound in quarter Russell's oasis morocco with hand marbled paper sides and vellum corners. Leather treated with potassium lactate & neat's foot oil & lanolin. February 1976.

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